Spring 2006

CS/BIO 271: Introduction to Bioinformatics

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CS/BIO 271 – INTRODUCTION TO BIOINFORMATICS

SPRING, 2006

Drs. Dan E. Krane and Michael L. Raymer
2:15 – 3:30 pm, Tuesday/Thursday
302 Russ Center

TEXTBOOKS AND OTHER MATERIALS

D. Krane and M. Raymer, *Fundamental Concepts of Bioinformatics*, Benjamin Cummings, 2003.

OFFICE HOURS

Dr. Krane — Tuesday, 9:00 – 11:00 am
Thursday, noon – 1:00 pm
or by appointment.
126 BH (775-2257)
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Dr. Raymer — Tue/Thurs, 3:30 – 6:00 pm
or by appointment.
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COURSE WEB PAGE

Keep an eye on this page for supplemental materials, copies of the lab assignments, notices, and important announcements. To get there, go to `http://birg.cs.wright.edu/271`

GRADING

Grades will be based on the two regular period exams (100 pts. each), a final cumulative exam (150 pts.), a term project (100 pts.) and the completion of lab and homework assignments made in class (50 pts.). One cumulative make-up exam will be given after the normal class meeting time on Tuesday, May 30. Only those students who present a valid reason for missing the original exam at least *two days before* the exam date or documentation of a medical emergency will be eligible to take the make-up exam.

The following grade cutoffs are guaranteed minimums. However, we reserve the right to curve the final grades based upon the final point distribution.

100–90%	A
89–80%	B
79–70%	C
69–60%	D
$\leq 59\%$	F

TENTATIVE LECTURE SCHEDULE

Lecture	Date	Topics
		PART A. DNA INFORMATION CONTENT
1	T, March 28	Course Introduction, Introduction to Perl
2	Th, March 30	Programming in Perl • Installing and using ActivePerl • Basic concepts in Perl programming
3	T, April 4	Introduction to Genomics • Information content in DNA • Data searches and pairwise alignments
4	Th, April 6	Basic Perl • Scalar and array variables • Control structures
5	T, April 11	Tools of molecular biology, molecular data repositories
6	Th, April 13	Perl programming • Functions and subroutines • Parameter passing
7	**T, April 18**	**EXAM 1 (100 pts.)**
		PART B. GENOMIC INFORMATION CONTENT
8	Th, April 20	Intermediate Perl • Data structures: arrays and hashes • File I/O
9	T, April 25	Substitution patterns
10	Th, April 27	Cluster analysis and phylogenetics
11	T, May 2	Parsimony approaches to phylogenetics
12	Th, May 4	Prokaryotic and eukaryotic genomes & gene structures
13	T, May 9	Gene recognition
14	Th, May 11	Gene expression and microarrays
15	**T, May 16**	**EXAM 2 (100 pts.)**
		PART C. PROTEOMIC INFORMATION CONTENT
16	Th, May 18	Predicting RNA secondary structure
17	T, May 23	Phi/psi, protein secondary structure, X-ray structures
18	Th, May 25	Protein folding – simple models
19	T, May 30	Structural modeling and visualization
20	Th, June 1	Proteomics, protein classification and modification
–	**Th, June 8**	**FINAL EXAM (150 pts.) 3:15 – 5:15 pm, 302 RC**

POLICIES & NOTES

Programming assignments (labs) are due by midnight of the due date. Late programming assignments will be accepted, but 10% of the total available points will be deducted for each day late. Labs are considered one day late after 11:59pm on the due date. At midnight of each successive day (including weekends) the lab is considered an additional day late until turned in. Once a graded programming assignment has been returned, that assignment will no longer be accepted.

Collaboration: Discussion of course contents with other students is an important part of the academic process and is encouraged. However, it is expected that course programming assignments, homeworks, and other course assignments will be completed *on an individual basis* unless the assignment specifically states otherwise.

Students may discuss general concepts with one another, but may not, under any circumstances, work together on the actual implementation of any course assignment. **If you work with other students on "general concepts" be certain to *acknowledge* the collaboration and its extent in the assignment. Unacknowledged collaboration will be considered dishonest.** "Code sharing" (including code from previous quarters) is strictly disallowed. "Copying" or significant collaboration on any graded assignments will be considered a violation of the university guidelines for academic honesty.

If the same work is turned in by two or more students, all parties involved will be held equally accountable for violation of academic integrity. *You are responsible for ensuring that other students do not have access to your work*: do not give another student access to your account, do not leave printouts in the recycling bin, pick up your printouts promptly, do not leave your workstation unattended, etc. If you suspect that your work has been compromised notify an instructor immediately.

Note: Failure to attend the first day of class, during which time these academic honesty policies will be explained in detail, *does not excuse you from following these policies*. If you have any questions about collaboration or any other issues related to academic integrity, please see an instructor immediately for clarification.